Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A DC/DC up-down converter, comprising:

a DC voltage source configured to provide an input voltage;

first and second outputs configured to output first and second output voltages, respectively;

a main switch coupled to the DC voltage source;

an inductance having a first terminal, coupled to the main switch, and a second terminal, the inductance being configured to provide a coil current;

a first output switch coupled in series with the first output and configured to control a direction of the coil current into the first output or into the second output;

a free-wheeling switch coupled to the DC voltage source and configured to provide current flow in the inductance if the main switch is switched off and

a controller configured to control the main, free-wheeling, and first output switches such that:

the first output voltage is lower than the input voltage;

the second output voltage is higher than the input voltage;

the controller controls the first output switch such that, during one switching cycle, the coil current flows from the second terminal of the inductance into both outputs; and

the controller controls the main switch in a transient state of the up-down converter, so that an average voltage on the first terminal of the inductance is equal to a voltage on the second terminal of the inductance.

2. (Previously Presented) The DC/DC up/down converter as claimed in claim 1 in which the controller is configured to generate switching phases for the switches and the

course of the coil current comprises an up-conversion phase and a down-conversion phase, wherein the down-conversion phase of the coil current comprises at least two switching phases.

3. (Previously Presented) The DC/DC up/down converter as claimed in claim 2, wherein the switching cycle has all the switching phases exactly once.

4. (Currently Amended) A DC/DC up-down converter, comprising: ~~which has~~

a DC voltage source configured to provide an input voltage;

first and second outputs configured to output first and second output voltages, respectively;

an inductance having a first terminal, coupled to the DC voltage source, and a second terminal;

a first output switch coupled in series with the first output and configured to control a direction of the coil current into the first output or into the second output;

a main switch connected between the second terminal of the inductance and the DC voltage source, and

a controller configured to control the main and first output switches such that:

the first output voltage is lower than the input voltage;

the second output voltage exceeds the input voltage;

where the controller is configured to control:

the first output switch so that during one switching cycle the coil current flows from the second terminal of the inductance into both outputs at least once: and

the main switch in a transient state of the up-down converter so that an average voltage on the second terminal of the inductance is equal to a voltage on the first terminal of the inductances, which is equal to the input voltage.

5. (Previously Presented) The DC/DC up/down converter as claimed in claim 4, wherein the controller is configured to generate switching phases for each switch and the coil

current has an up-conversion phase and a down-conversion phase, wherein the up-conversion phase of the coil current comprises at least two switching phases.

6. (Previously Presented) The DC/DC up/down converter as claimed in claim 5, wherein the switching cycle comprises all switching phases exactly once.

7. (Previously Presented) The DC/DC up/down converter as claimed claim 1, wherein the switches are MOSFETs; IGBTs, GTOs or bipolar transistors.

8. (Canceled)

9. (Previously Presented) The DC/DC up/down converter as claimed in claim 4, further comprising:

a third output configured to produce a third output voltage;

a second output switch connected in series with the third output.

10. (Previously Presented) The DC/DC up/down converter as claimed in claim 1, further comprising:

a third output configured to produce a third output voltage;

a second output switch connected in series with the third output.

11. (Currently Amended) A device, comprising:

a first input configured to provide an input voltage;

first and second outputs configured to output first and second output voltages, respectively;

an inductance ~~coupled to the main switch and~~ configured to provide a coil current;

a first input switch coupled to the inductance;

a first output switch coupled in series with the first output and configured to control a direction of the coil current into the first output or into the second output;

a controller configured to:

control the first output switch such that, during one switching cycle, the coil current flows from ~~the~~ a second terminal of the inductance into both outputs, and

control the first input switch in a transient state so that an average voltage on a first terminal of the inductance is equal to a voltage on a second terminal of the inductance.

12. (Previously Presented) The device of claim 11, further comprising:

a third output configured to produce a third output voltage;

a second output switch connected in series with the third output.

13. (Previously Presented) The device of claim 11, further comprising a DC voltage source configured to provide the input voltage to the first input.

14. (Currently Amended) The device of claim 13, wherein the inductance has ~~a~~ the first terminal directly connected to a first terminal of the DC voltage source and the first input switch is coupled between the second terminal of the inductance and a second terminal of the DC voltage source.

15. (Previously Presented) The device of claim 13, further comprising a second input switch, the first input switch being coupled between a first terminal of the DC voltage source and the first terminal of the inductance and the second input switch being coupled between a second terminal of the DC voltage source and the first terminal of the inductance.

16. (Previously Presented) The device of claim 11, wherein the controller is configured to generate switching phases for the switches and the course of the coil current comprises an up-conversion phase and a down-conversion phase, wherein the down-conversion phase of the coil current comprises at least two switching phases.

17. (Previously Presented) The device of claim 15, wherein the switching cycle has all the switching phases exactly once.